



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/708,382

02/27/2004

Gerry Ashton

BUR920020128US1

2381

21918

7590

11/09/2006

DOWNS RACHLIN MARTIN PLLC

199 MAIN STREET

P O BOX 190

BURLINGTON, VT 05402-0190

EXAMINER

MERANT, GUERRIER

ART UNIT

PAPER NUMBER

2138

DATE MAILED: 11/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/708,382		ASHTON ET AL.	
	Examiner		Art Unit	
	Guerrier Merant		2138	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is the initial office action based on the application filed on December 18, 2002. Claims 1-20 are currently pending and have been considered below.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "pulse generator" claimed in claims 3 and 16 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5-7, 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by **Gregor et al. (US 6,304,122)**.

Claims 1, 2, 7: **Gregor et al.** discloses an integrated circuit, comprising:

a) a first clock tree (*item 1110, Fig. 11*) for receiving a first clock signal having a plurality of pulses each having a first width

a) at least one shift register latch (*item 1140, Figs. 11 & 12*), comprising:

i) a first latch (*item 1520*);

ii) a second latch (*item 1530*) in electrical communication with said first latch;

iii) an input for receiving a first clock signal (*Single Clock, Fig. 11*);

iv) and a circuit (*item 1130, Fig. 11*), connected between said input and said first latch, configured for generating a second clock signal that compensates for any delay in said first clock signal (*col. 7, lines 54-67 & col. 8, lines 1-11; see Fig. 11*).

Claim 3: **Gregor et al.** discloses an integrated circuit according as in claim 1 above, wherein said circuit comprises a pulse generator for generating a first clock pulse for said first latch (*Single Clock, Fig. 11*).

Art Unit: 2138

Claims 5 and 6: Gregor et al. discloses an integrated circuit according as in claim 1 above, wherein said first clock signal comprises a plurality of first pulses each having a first duration and said second clock signal comprises a plurality of second pulses each having a second duration shorter than said first duration (*col. 8, lines 6-20; Fig. 13*).

Claim 10: Gregor et al. discloses an integrated circuit according as in claim 7 above, further comprising a multiplexer (*item 1510; Fig. 15*) in electrical communication with said master latch (*item 1520; Fig. 15*).

Claims 11-13: Gregor et al. discloses an integrated circuit according as in claim 7 above, comprising at least one first scan chain (*SRL 1140 would be serially connected to other SRLs through the SO output. The L1 and L2 outputs would be sent to the appropriate logic that uses these values meaning they are second, third, or fourth scan chains- col. 8, lines 31-34- see Figs. 11 & 15*) comprising a plurality of first shift register latches (*items 1520 & 1530; Fig. 15*).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2138

5. Claims 4, 8 and 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gregor et al. and further in view of Joordens et al. (US 2004/0061539).

Claims 4, 8 and 9: Gregor et al. discloses an integrated circuit according to claims 3 and 7 above, wherein said pulse generator comprises inverters and transistors (see *Fig. 12*) and fails to disclose an AND gate and an inverter instead of inverters and transistors. However, Joordens et al. discloses a phase detector circuit comprising an inverter (*item 720*) and a NAND gate (*AND gate & inverter item 740*) (see *Figs. 7 & 8*) that detects rising edges of the data and clock. In another embodiment according to the present invention, the phase detector may be designed to detect data transitions outside of the window as well (i.e., on the falling edge of the clock). Any mismatch between the rising and the falling edge is filtered out (by the loop) [0044]. Therefore at the time of the invention, one of ordinary skill in the art would have found it obvious to use the phase detector circuit of Joordens et al. to acquire distorted signals at very high data rates and to provide a clock signal and retimed or recovered data as outputs [005-006; Joordens et al.] because clock recovery is often essential for the regeneration of distorted binary signals [0007; Joordens et al.].

Claims 14 and 15: Gregor et al. discloses an integrated circuit including: a) a scan clock tree (*item 1110, Fig. 11*) for receiving a first clock signal having a plurality of pulses each having a first width

a) at least one shift register latch (*item 1140, Figs. 11 & 12*), comprising:

Art Unit: 2138

i) a first latch (*item 1520*);

ii) a second latch (*item 1530*) in electrical communication with said first latch;

iii) an input for receiving a first clock signal (*Single Clock, Fig. 11*);

iv) and a circuit (*item 1130, Fig. 11*), connected between said input and said first latch, configured for generating a second clock signal that compensates for any delay in said first clock signal (*col. 7, lines 54-67 & col. 8, lines 1-11; see Fig. 11*), but **Gregor et al.** fails to disclose a power supply connected to the integrated circuit. However, **Joordens et al.** discloses a phase detector circuit comprising a power supply (*charge pump, item 920; FIG. 9*) that takes an input from a phase detector (*item 910*), sends the output to a low-pass filter (*item 930*) which generates the oscillator control voltage that the sets the VCO (*item 940*) in order to reduce jitter [0046]. Therefore at the time of the invention, one of ordinary skill in the art would have found it obvious to use the power supply (*charge pump*) disclosed in **Joordens et al.** to integrate the phase difference between up and down on a loop filter capacitance and translates a phase error into a voltage difference [0039; **Joordens et al.**].

Claim 16: **Gregor et al.** and **Joordens et al.** disclose an integrated circuit according as in claim 14 above, wherein said circuit comprises a pulse generator for generating a first clock pulse for said first latch (*Single Clock, Fig. 11*).

Claims 17: **Gregor et al.** and **Joordens et al.** disclose an integrated circuit according to claims 16 above, wherein said pulse generator comprises inverters and transistors (see

Art Unit: 2138

Fig. 12) and fails to disclose fails to disclose an AND gate and an inverter instead of inverters and transistors. However, Joordens et al. discloses a phase detector circuit comprising an inverter (item 720) and a NAND gate (AND gate & inverter item 740) (see Figs. 7 & 8) that detects rising edges of the data and clock. In another embodiment according to the present invention, the phase detector may be designed to detect data transitions outside of the window as well (i.e., on the falling edge of the clock). Any mismatch between the rising and the falling edge is filtered out (by the loop) [0044]. Therefore at the time of the invention, one of ordinary skill in the art would have found it obvious to use the phase detector circuit of Joordens et al. to acquire distorted signals at very high data rates and to provide a clock signal and retimed or recovered data as outputs [005-006; Joordens et al.] because clock recovery is often essential for the regeneration of distorted binary signals [0007; Joordens et al.].

Claims 18 and 19: Gregor et al. discloses an integrated circuit according as in claim 14 above, wherein said first clock signal comprises a plurality of first pulses each having a first duration and said second clock signal comprises a plurality of second pulses each having a second duration shorter than said first duration (*col. 8, lines 6-20; Fig. 13*).

Claim 20: Gregor et al. discloses an integrated circuit according as in claim 14 above, further comprising a multiplexer (*item 1510; Fig. 15*) in electrical communication with said master latch (*item 1520; Fig. 15*).

Art Unit: 2138

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

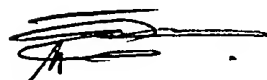
a) **Komai et al. (US 6,069,829)** discloses an internal clock multiplication for test time reduction.

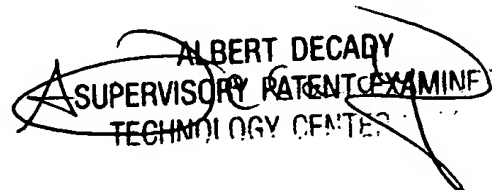
b) **Sine et al. (US 5,621,739)** discloses a method and apparatus for buffer self-test and characterization.

c) **Huang et al. (US 7,127,695)** discloses a timing based scan chain implementation in an IC design.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Exr. Merant Guerrier whose telephone number is (571) 270-1066. The examiner can normally be reached Monday through Thursday from 10:30 a.m. to 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady, can be reached on (571) 272-3819. Draft or Informal faxes, which will not be entered in the application, may be submitted directly to the examiner at (571) 270-2066.


Merant Guerrier
11/01/06


ALBERT DECADY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER